

vendor-owned, that is used to support systems under this contract shall be maintained by the Contractor. All other UPS equipment will be maintained by the Government or the facility owner.

- If the Offeror chooses to use the computer-conditioned space at the Greenbelt site, hereafter referred to as GRBLT site, it shall include a per annum cost of \$130,000 in its price proposal for use of the space, beginning in October 2006. This cost shall be in addition to the electric utility costs as prescribed in Section C.11.3.2.
- For the GSA-managed facilities, BLDR-1 and BLDR-2, in which the any facility modifications must be paid to the facility manager by the Government prior to the work being contracted for and performed by the facility manager (e.g., GSA), the Government shall be fully reimbursed by the Contractor for the work to be performed through credits against the contract that do not extend beyond the fiscal year in which the expenditures are made by the Government.

For any facility modifications to be made, the Contractor must follow the following procedures that are specific to each of the indicated sites:

**Boulder, CO**

The David Skaggs Research Center (DSRC) is owned by the Government and operated by the General Services Administration (GSA). Because of this, all building modifications are subject to GSA Regulations, thereby requiring that GSA contractors carry out these modifications. Therefore, any facilities modifications will require that funds be held back from the contract for transfer to GSA for any changes to be made to GSA properties.

Close coordination with the DSRC landlord, U.S. General Services Administration (GSA), will be required if any building modifications are required. Costs will include normal GSA overhead charges plus project management oversight. All modifications must meet standard building codes as dictated by GSA. The Contractor is advised that, because of the long implementation delays for large projects (see table below), facility modifications, at least during the first year of the contract, should be limited to small projects such as power receptacle changes. Large facility modifications will require substantial lead-time to complete.

contiguous raised floor space. NASA will make available up to 260 tons of cooling and 920 KVA of power to the computer room.

For Phase II of the site preparation, NOAA and GSFC's Facilities Management Division (FMD) will work with the winning Contractor in developing a detailed site plan, using the Contractor's facility proposal and transition plan. Post-award changes to the computer room, subsequent to the Phase I effort above, may include, depending on the selected Offeror's specific equipment, purchase and installation of CRAC units and PDUs, purchase and installation of new floor tiles, raising the floor height from the present 18 inches to 24 inches, modifications to accommodate above-standard equipment height, etc. GSFC's FMD must review and approve all proposed changes to the offered space. This approval process is estimated to require several weeks to complete, from the date that the proposal is submitted by the Contractor, through the NOAA Contracting Officer.

**NOAA will provide the funds outside of the R&D contract to cover the cost of the Phase I site preparation. The cost of the Phase II site preparation shall be included in the Offeror's cost proposal. All costs associated with the Phase II site preparation at GFSC shall be the Contractor's responsibility. Accordingly, the Contractor shall adjust its payment profile in FY2007 to correspond to its price proposal for the Phase II site preparation. The reduction in FY2007 payments shall be amortized in equal amounts over a six-month period commencing in October 2006.**

#### **C.5.6.2 Contractor-Provided Facilities**

The Contractor may propose to use facilities other than the Government-provided facilities that are described in Section 11, Appendix B. Any Contractor-provided facilities shall meet the following conditions:

- Contractors are responsible for providing all facilities resources, including floor space, utilities, facilities maintenance, janitorial services, etc. Therefore, any lost system time caused by environmental outages (such as loss of power, cooling, etc.) or facility failures will be recorded as downtime for availability calculations.
- Contractors may use any Unrestricted GFE provided in Appendix C, Section 0, but are responsible for all shipping costs, and for the shipment both to the Contractor site and back as directed by the Government.
- Designated Government personnel must have access to the Contractor facility on an as-needed basis, subject to reasonable controls.

#### ***C.5.6.3 Office space, workstations, LAN connectivity, phone service, and office equipment for on-site contract personnel***

The following policies will be in force for any Contract personnel to be located at Government sites.

The Government will provide LAN connectivity to all Contractor personnel located at its sites. The Contractor shall provide workstations, phone service, and office furniture for all of its personnel located at Government sites, although the Government may, for its convenience, choose to provide this on a case-by-case

basis. To assure that IT security policies are maintained, the Government will require Contractors to install, operate, and maintain their workstations on the LAN in a manner that is consistent with Government IT security policies.

#### **Boulder, CO**

The Government will supply two (2) 150-sq. ft. offices and approximately 100 square feet of lab space for use by the Contractor.

#### **Washington, DC**

NCEP can accommodate two on-site personnel at the World Weather Building and its annexes. However, office space is extremely limited, so contractors should limit office space requirements as much as possible.

#### **Princeton, NJ**

Effective October 2006, the Government will provide two offices for use by Contractor's personnel who are responsible for system operation. These two offices will be occupied by the current Raytheon system support staff until the end of the contract on September 30, 2006. They are the large room adjacent to the Operators Room and an office across the hall. If the R&D Contractor requires additional office space and/or storage space beginning in October 2006 or requires office and/or storage space prior to October 1, 2006, it may construct offices on the hard pan in the southwest corner of the Computer Room as part of its facility proposal. It may construct these rooms in of the hard pan space that was previously planned for offices as indicated in Figure 13. If the Contractor does not choose to use this hard pan for this purpose, it may use this non-raised floor for installation of equipment that does not require raised floor.

In addition to the two offices provided for personnel responsible for system operation, the Government will attempt to provide additional office space to other Contractor personnel on an as-needed and as-available basis.

### ***C.6 Reliability and Availability Requirements***

#### **C.6.1 Reliability and Availability**

The HPCS shall continue NOAA's historically high utilization of its computing resources. Reliability, availability, and Contractor support are considered fundamental aspects of the HPCS.

##### **C.6.1.1 Reliability**

Downtime (as defined in Section C.13.2, Appendix D) will be used in the determination of the actual System Life Throughput. Periods of Remedial and Preventive Maintenance count as downtime. Null time will not be counted as downtime. Null time is that period of time when the workload cannot be accomplished due to environmental failure at a Government-furnished site, such as loss of electric power or cooling, or recovery from environmental failure. Downtime for each HPCS component is based on the fraction of the resources available for that component's workload. It is arrived at through consultation between the Government and the Contractor, and ultimately determined by the Government.

C.10.6.3 Princeton, NJ

The following data flow diagram depicts a single climate run.

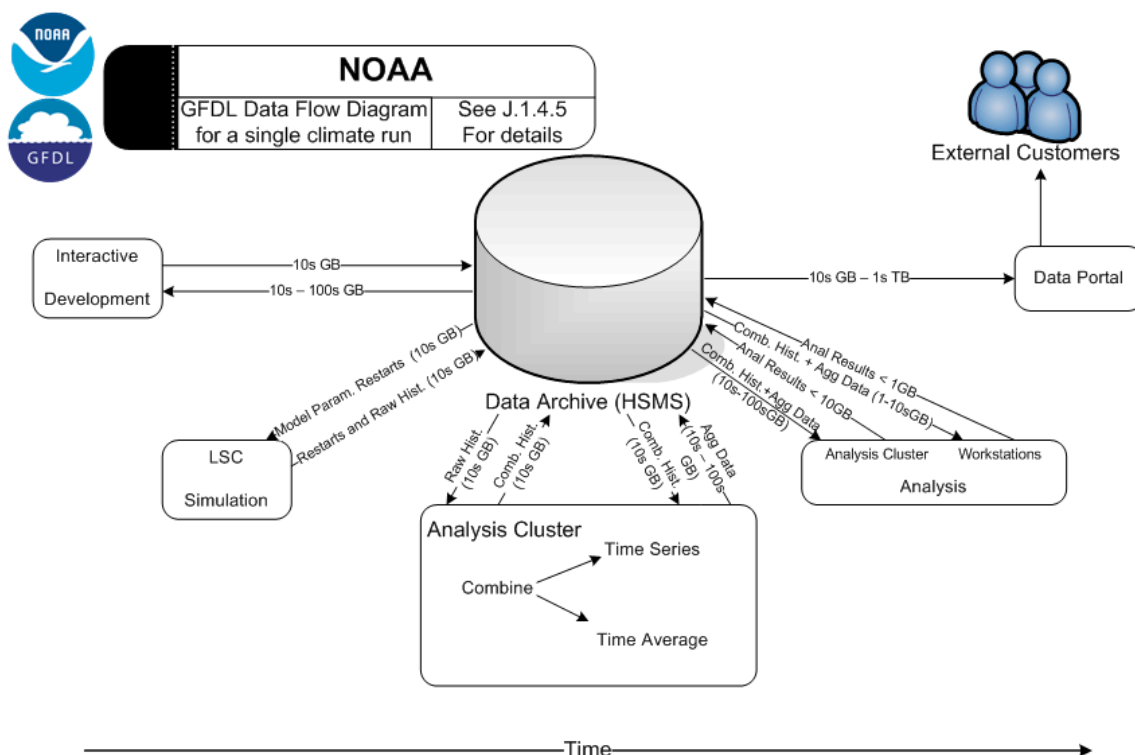


Figure 10A – Single Climate Run

### ***C.11 Appendix B - Available Government Facilities***

This document provides descriptions of four government-furnished facilities, which are designed to support high-performance computer systems. All four facilities are available for possible use by Offerors to house systems under the NOAA HPC R&D contract, including the availability of facility resources as projected in Section 0 under the assumptions provided therein and subject to the facility terms and conditions provided in Section C.5.6. Two of these facilities, designated as BLDR-1 and BLDR-2, are located in the David Skaggs Research Center (DSRC), 325 Broadway, Boulder, CO. DSRC is owned by the Government and managed by the General Services Administration (GSA). The third, designated as PRTN, is located in Geophysical Fluid Dynamics Laboratory (GFDL) building complex, referred to as the "Princeton Complex" below, at 201 Forrestal Road, Princeton University Forrestal Campus, Princeton, NJ. The Princeton Complex is owned by Princeton University and leased to the Government. The fourth facility, designated as GRBLT, is space located at the NASA Goddard Space Flight Center (GSFC), Building 28, Greenbelt, Maryland 20771. This space will be leased from NASA by NOAA, pending the award decision for this solicitation.

BLDR-1 currently houses NOAA's JET computer system operated by OAR's Forecast Systems Laboratory under a contract with HPTi. The BLDR-1 facility will not be available until October 2006. BLDR-2 is a facility currently under construction at DSRC and is expected to be available for use in [late November 2005](#). PRTN currently houses NOAA's HPCS operated by OAR's Geophysical Fluid Dynamics Laboratory under a contract with Raytheon. The GRBLT space is currently used by NASA as general office space.

#### **C.11.1 Layout and Physical Dimensions of Computer Room**

##### **C.11.1.1 Computer Room Layout**

###### **Facility Drawings**

Offerors requesting facility drawings and related documents that contain sensitive but unclassified information shall be required to have an authorized representative execute a non-disclosure form as required under GSA Order PBS 3490.1. Specific room floor plans are available upon request and are not subject to these regulations.

Figures 11, 11a, 12, 12a, 13, 13a, 14, and 15 referenced below will be provided to Offerors upon request and are not subject to these GSA regulations. Figure 14 contains sensitive but unclassified information and is subject to the GSA regulations; this figure will be provided to Offerors from whom the Government has received acceptable non-disclosure forms for the facilities shown in the figures (i.e., PRTN).

**BLDR-1**

Figure 11 shows the computer room layout for BLDR-1. The area within the dotted line will be available in October 2006. This room is only designed for medium-density cooling configurations. Figure 11a shows 80 sq. ft. of space available in October 2005 in support of a possible HSMS.

**BLDR-2**

Figure 12 shows the planned computer room layout, which is currently in the design phase. It will be designed with both overhead and under floor extreme-density cooling. The uninterruptible power supplies (UPS) will be fed from utility power only (i.e., the room will not be connected to the emergency motor generator). This room will be completed and available for use by the Contractor by [late November](#) 2005.

Figure 12a shows a revised room layout for BLDR-2 that seeks to address concerns expressed by Contractors in their questions as well as design requirements. The following changes have been made in the design:

- CRAC unit positioning changed (opposing)
- Secondary egress installed
- XDO units moved to accommodate racks that may be up to 48 inches deep
- Full 4 foot “cold aisle” between the fronts of the HPC racks.

**PRTN**

[Figure 13 shows the computer room layout for the system as of October 2004, but also showing the silos moved onto the northern hardpan \(to be done in Spring 2005\) and room construction on the left hard pan and to the left of the Operators Room that have since been abandoned.](#) References to the front of the room in the following discussion refer to the bottom of the figure (nearest to the Operators Room), while the back of the room is at the top of the figure.

Figure 14 shows the overall Computer Building layout. The rooms adjacent to the Computer Room as shown at the bottom of the figure from left to right are:

- Loading Dock, which is designed to accept deliveries from 18-wheel trucks.
- Storage Room adjacent to the Loading Dock, which also serves as a receiving/staging area for deliveries to the Laboratory.
- Office for Contractor support personnel
- Operators Room, which serves as the control room for computer operations as well as security monitors for the Computer Room as well as outside building access points for the Computer Building and Main Building.
- Printer/User Output Room, which contains local Computer Building printers as well as user output bins.
- Operations Lounge.

UPS and CRAC units. An adjacent room contains an additional 156 sq. ft. of raised floor space, and is available as an assembly area.

**PRTN**

Figure 13 indicates the computer room layout for PRTN. Figure 14 shows the location of the computer room within the Computer Building of the PRTN Complex. The entire computer room is 10,004 square feet in size, with dimensions of 122 feet by 82 feet; this includes the UPS Room, which is located on the hardpan on the right rear corner of the Computer Room.

**GRBLT**

As Figure 15 indicates, the computer room to be constructed will be taken from two rooms with dimensions of 40'X75' and 40'X50' and a corridor between the rooms with dimensions of 75' x 6'5". The resulting single room will be approximately 5500 square feet.

**C.11.1.4 Raised Floor Space****BLDR-1**

A total of 3600 sq. ft. of raised floor is in BLDR-1. 80 sq. ft. of this space will be available in October 2005. A total of 2250 sq. ft. of this space will be available in October 2006.

**BLDR-2**

A total of 1424 sq. ft. of raised floor will be [available](#) in BLDR-2, all of which will be available once construction of the room is completed in [late November](#) 2005. See Figure 12a for locations of installed UPS and CRAC unit equipment.

**PRTN**

The raised floor area in PRTN totals 7052 sq. ft. with dimensions of 86 feet by 82 feet.

**GRBLT**

All of the provided space will be raised floor space.

**C.11.1.5 Non-Raised Floor Space and Equipment Staging Areas****BLDR-1 & BLDR-2**

There is no non-raised floor in either computer room. The computer rooms themselves are used as staging areas.

**PRTN**

The non-raised floor on the left side of the room is 1476 sq. ft. with dimensions of 18 by 82 feet. Roughly 360 sq. ft. of this non-raised floor, located adjacent to the doors leading to the loading dock, will be available as a staging area for new

equipment. The non-raised floor on the right side is 936 square feet, with dimensions of 18 by 52 feet, reflecting reduced non-raised floor space due to the



**C.11.11 Projected Availability of Floor Space, Power, and Cooling**

The following amounts show projected total resources available at the indicated dates under the assumptions provided. The October 2004 availability is shown for reference purposes only, because the Contractor cannot utilize the [BLDR-1](#) resources until October 2005. [The BLDR-2 resources will not be available until late November 2005.](#)

Table XII – TOTAL RESOURCES AVAILABLE

		Oct. 2004	Oct. 2005	Oct. 2006
<b>Available Raised Floor Space (sq. ft.)</b>	BLDR-1	0	80	2,250
	BLDR-2	0	1,424	1,424
	PRTN	900	2,700	6,500
	GRBLT	0	0	5,500
	<b>TOTAL</b>	<b>900</b>	<b>4,204</b>	<b>15,674</b>
<b>Available Non-Raised Floor Space (sq.ft.)</b>	BLDR	0	0	0
	PRTN	360	900	2,700
	GRBLT	0	0	0
	<b>TOTAL</b>	<b>360</b>	<b>900</b>	<b>2,700</b>
<b>Available Power for New Hardware (kVA)</b>	BLDR-1	0	10	250
	BLDR-2	0	350	350
	PRTN	250	70	650
	GRBLT	0	0	900
	<b>TOTAL</b>	<b>250</b>	<b>430</b>	<b>2,150</b>

		Oct. 2004	Oct. 2005	Oct. 2006
<b>Available Cooling for New Hardware (tons)</b>	BLDR-1	0	3	72
	BLDR-2	0	146	146
	PRTN	170	108	307
	GRBLT	0	0	260
	<b>TOTAL</b>	<b>170</b>	<b>257</b>	<b>785</b>

### Assumptions for Projections

Available Raised Floor Space:

#### BLDR:

- (1) October 2005 estimate of 1424 ft. is solely in BLDR-2 and assumes completion of computer room design, construction and testing [for availability late November 2005](#).
- (2) 80 sq. ft. of BLDR-1 is available in October 2005 to support an HSMS. (See Figure 11a)
- (3) The increase of 2170 sq. ft. in the October 2006 total reflects additional available space in BLDR-1 that is currently occupied by systems purchased under current HPTi contract. In reality, the new Contractor will be required to coordinate new equipment installation with current system removal so as to minimize loss of compute cycles to the Government.

#### PRTN:

- (1) Oct. 2004 estimate reflects that the StorageTek silos are still located on the raised floor.
- (2) Oct. 2005 number is an estimate derived from the unoccupied raised floor space for the room layout as indicated in Figure 13a, which shows the assumed positions of systems and Storage Tek silos after the mid-contract installation is complete. (The actual square footage of free space is obviously subject to interpretation to account for obstructions such as room columns and ramps, size of equipment to be installed, etc.)
- (3) Oct. 2006 estimate reflects available space occupied by systems leased under current Raytheon contract, because this leased equipment will be removed at the end of the current contract. In reality, the new contractor will be required to coordinate new equipment installation with current system removal so as to minimize loss of compute cycles to the Government.

[Figure 11 withheld from Public Website – Available upon request.]

**Figure 11** *Projected Computer Room Layout for BLDR-1 in September 2006. The area enclosed within the dashed line indicates the floor space that will be available for Offeror use in October 2006. The small squares shown indicate 2'x2' floor tiles. Vent tiles are indicated by stippled squares.*

[Figure 11a withheld from the Public Website – Available upon Request.]

**Figure 11a** *Computer Room Layout for BLDR-1 showing 80 sq. ft. of raised floor area available for an HSMS in October 2005.*

[Figure 12 withheld from Public Website – Available upon request.]

**Figure 12** *Schematic of Computer Room Layout for BLDR-2 facility that is expected to be available in [late November 2005](#)*

[Figure 12a withheld from Public Website – Available upon request]

**Figure 12a** *Schematic of Revised Computer Room Layout for BLDR-2 facility that seeks to address concerns expressed by Contractors in their questions as well as design requirements. See Section C.11.1.1.*

[Figure 13 withheld from Public Website – Available upon request.]

**Figure 13** *Computer Room Layout for PRTN as originally planned. Small squares in the figure indicate 2'x2' floor tiles. Vent tiles are indicated by stippled squares. (The construction of the 5 offices on the left hand pan and the two offices to the left of the Operators Room have been cancelled. See Figures 13a and 14 for the actual configuration of office spaces.)*

[Figure 13a withheld from Public Website – Available upon request.]

**Figure 13a** *Schematic of PRTN Computer Room and adjacent rooms as of October 2005. Equipment in the Computer Room that is not colored is Raytheon equipment that will be removed at the end of the current HPCS contract. The equipment surrounded by red dashed lines, the Verizon telco rack (red) next to the left hand pan and the servers/UPS boxes (light green) and LAN network rack (red) in the lower right, are Government equipment that are not specifically part of this contract. The colored GFE equipment are as follows: air handlers (light blue), PDUs (dark blue), 225-KVA UPS (brown), archival storage (yellow), networking equipment (red), SAN (TP9100) disks (purple), SGI Origin 3800 systems (orange), and SGI Altix 8-processor test system*

## C.12 Appendix C – Government Furnished Equipment (GFE)

The following describes Government-owned property that is available to be furnished to the Contractor for the performance of this contract. Because some Government-furnished equipment that is located at the designated sites is only available for use by the Contractor if that facility is used, the GFE lists are separated into two categories: “Site-Constrained GFE”, which is equipment that is only available if used at the designated site; and “Unrestricted GFE”, which is available for use under this solicitation without site restrictions.

### Boulder, CO

#### Site-Constrained GFE

Note: Partial use of this equipment is authorized up to the limits set forth in Appendix B.

Manufacturer	Part/Model Number	Description	Qty	Date Available
Chloride	EDP90/300/250 4x4	Uninterruptible Power Supply UPS Cabinet and Battery Bank (250kVA)	1	10/2006
	EDP70L/100/100 4x4	UPS Cabinet and Battery Bank (100kVA)	2	10/2006
Liebert	FH740C	Computer Room Air Conditioning Chill Water - Down Draft – 30 tons	4	10/2006
Phonetics	SCADA 3000	Environmental Monitoring Sensaphone SCADA 3000	1	10/2006
<b>HSMS</b>				
ADIC	AML/J	Tape Robot	1	10/2005
IBM		LTO-1 Tape drives	8	10/2005
Sun	E450	HSMS Server	1	10/2005
Various		LTO-1 Tape Cartridges	330	10/2005

#### Unrestricted GFE

Manufacturer	Part/ Model Number	Description	Qty	Date Available
<b>Compute Hardware</b>				
Myricom	M3-E128	Myrinet line card enclosure	15	10/2006
Myricom	M3-M	Management line card	15	10/2006
Myricom	M3-SW16-4DM	Ribbon spine line card	84	10/2006
Myricom	M3-SPINE-8F	Fiber spine line card	44	10/2006
Myricom	M3-SW16-8F	Fiber switch line card	96	10/2006
Myricom	M3F-PCI64B-2	PCI card (NIC)	768	10/2006
Myricom	M3-CLOS-ENCL	14U enclosure for Clos256_256 networks	2	10/2006
Myricom	M3F-PCIXD-2	PCI D card (NIC)	317	10/2006
Myricom	M3-SW32-16F	16 Port line card	20	10/2006
Myricom	M3-THRU-16Q	Line card for 16 quad fiber thru connections	2	10/2006
Myricom	M3-2SW32	Dual SW32 line card	4	10/2006
Myricom	M3-4SW32-16Q	Quad SW32 line card	2	10/2006

**Washington, DC**

All of the GFE listed in this subsection below will be available October 2006.

Site-Constrained GFE

- None

Unrestricted GFE

Gaithersburg, MD:

Two (2) StorageTek Powderhorn silos configuration (two 9310, 9311, 9330).

Each of the silos includes:

- eight (8) 9940B tape transports
- 5000 9940 tape cartridges

Each silo contains roughly one PetaByte of data.

Fairmont, WV:

One (1) StorageTek Powderhorn silo configuration (9310, 9311, 9330).

The silo includes:

- four (4) 9940B tape transports
- 2300 tape 9940 cartridges

**Greenbelt, MD**

All of the GFE listed in this subsection below will be available in the summer of 2006.

Site-Constrained GFE

- Six 33-ton Liebert air handlers

Unrestricted GFE

- None

**Princeton, NJ**

Unless otherwise stated, all of the following GFE for Princeton will be available in October 2006

Site-Constrained GFE

Manufacturer	Part Number	Description	Qty
<b>Computer Room Security Monitoring</b>			
		C-Cure 800	
Compac	4403US	Compac MS 2000 C-Cure 800 OS	1
Emerson	P761VBT0EENC	Monitor C-Cure 800	1

**Computer Room Security Monitoring**

		Intellex 16000	
Sensormatic	DVMS DV16000	Intellex 16000 Video recorder system w/CD backup max 16 cameras	1
NEC	FE1250+BK	Monitor Intellex 16000	1
Pelco	CC-3700-S	Color CCD Camera	12

**Power Distribution Units**

United Power	PDM4-F3-225-K13-426	PDU 1 (225 kVA)	1
United Power	PDM4-F3-225-K13-426	PDU 2 (225 kVA)	1
United Power	PDM4-F3-225-K13-426	PDU 3 (225 kVA)	1

**Uninterruptible Power Supply**

MGE	72-131522-000	UPS Cabinet and Battery Bank 225 KVA	1
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**Power Distribution Units**

Liebert	PPA125C	PDU Unit (125 KVA)	1
EPE	PD084M48A12-125	PDU Unit (125 KVA)	1

**Computer Room Air Conditioners**

DataFlow	CCT-60C4	CRAC 1 (35 Tons)	1
DataFlow	CCT-60C4	CRAC 2 (35 Tons)	1
DataFlow	CCT-60C4	CRAC 3 (35 Tons)	1
DataFlow	CCT-60C4	CRAC 4 (35 Tons)	1
DataFlow	CCT-60C4	CRAC 5 (35 Tons)	1
DataFlow	CCT-60C4	CRAC 7 (35 Tons)	1
APC	CCT-60C4	CRAC 8 (35 Tons)	1
APC	CM-3.0-W-BC-D	CRAC 6 (3 Ton)	1

**Unrestricted GFE**

Manufacturer	Part Number	Description	Qty
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**Switch for Shared Storage**

SGI	FC-SWITCH-16	SGI Fibre Channel switch with 16 ports and one power supply	8
SGI	FC-SWITCH-PWR	Optional second power supply for SGI FC switches (8 & 16 port)	8
SGI	FC-SWKIT	Rackmount kit for mounting FC-SWITCH-8 or FC_SWITCH-16 in F1RACK	8
SGI	XSWOPTGBIC	Short Wave Optical GBIC kit containing 6 GBICs	16

SGI	XCOPGBIC	Copper GBIC kit containing 6 GBICs	6
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### ***Switch for Tape Drives***

SGI	FC-SWITCH-16	SGI Fibre Channel switch with 16 ports and one power supply	8
SGI	FC-SWITCH-PWR	Optional second power supply for SGI FC switches (8 & 16 port)	8
SGI	FC-SWKIT	Rackmount kit for mounting FC-SWITCH-8 or FC_SWITCH-16 in F1RACK	8
SGI	XSWOPTGBIC	Short Wave Optical GBIC kit containing 6 GBICs	16
SGI	XCOPGBIC	Copper GBIC kit containing 6 GBICs	6

### ***Console and Monitoring***

SGI	SG230-00008	230L Workstation, 667 MHz PIII, 128MB PC 133 SDRAM, 20GB IDE, V3 Gfx 32MB DDR, Red Hat 6.1	2
SGI	91-AB945-001	19" Northern Hemisphere Monitor	2
SGI	91-AD001-001	Keyboard, Mouse, Speakers, Power Cords, Monitor Cable, User Manual	2
SGI	SSU60003	HW on-site support 4hr response, 7x24, years 1-3 for SGI 230 Workstation	2
SGI	SC4-PCP-2.0	Performance Co-Pilot - Performance Monitoring tool for IRIX 5.3 and higher (replaces PCPORIGIN)	1
SGI	SC4-PCPHPC-1.0	Performance C-Pilot Add-On agent for IRIX 6.5 clusters (replaces SC4-PCPARRAY-1.0); requires SC4-PCP-2.0	8
SGI	SV4-PCPCOL-2.0-10	Performance Co-Pilot Collector 10 license pack	1

### ***Hierarchical Storage Mgmt System***

SGI	ORIGIN-3800	SGI Origin 3800 server - 64 CPUs (GFE) 600Mhz R14000A processors), 64GB memory, 16 Local Disk Channels (1Gb/sec), 16 Shared Disk Channels(2Gb/sec), 24 Tape I/O Channels, and 2 Gigabit Ethernet Channels. 180GB	1
StorageTek	9310002-0000	POWDERHORN 6000 CART/450 EPH	3
StorageTek	9940L03-0000	9940, Library, Fibre	30
StorageTek	9840L03-0000	9840, Library, Fibre	22
SGI	FC-SWITCH-16	16 port 1Gb FC switch (8Cu/8Optical)	16
SGI	ORIGIN-3800	SGI Origin 3800 server - 64 CPUs (Lease 1a) 600Mhz R14000A processors), 64GB memory, 16 Local Disk Channels (1Gb/sec), 16 Shared Disk Channels(2Gb/sec), 24 Tape I/O Channels, and 2 Gigabit Ethernet Channels.	1

## Storage

***HSMS Local Storage***

SGI TP9100 1GB	TP9100 D-Brick with fourteen 36GB 10KRPM Drives	16
STOR-CTRL 128	TP9100A Dual Channel Control Unit with 1Gb FC	16
SGI TP9100 1GB	TP9100 D-Brick with fourteen 18GB 10KRPM Drives	2
STOR-CTRL 128	TP9100A Dual Channel Control Unit with 1Gb FC	2
Empty Rack	I/O Racks with AC Power Distribution	3
FC-SWITCH-16	16 port 1Gb FC switch (8Cu/8Optical)	4

***Hierarchical Storage Mgmt System***

StorageTek	9310002-0000	POWDERHORN 6000 CART/450 EPH	2
StorageTek	9840	Media Cartridges	6500
StorageTek	9940	Media Cartridges	21500

## Connectivity

***Connectivity - Existing***

Cisco	WS-C6509	Catalyst 6509 Chassis	1
Cisco	WS-CAC-1300W	Catalyst 6000 1300W AC Power Supply	1
Cisco	WS-CAC-1300W/2	Catalyst 6000 Second 1300W AC Power Supply	1
Cisco	SFC5K-SUP-5.5.1	Catalyst 6K Supervisor Flash Image, Release 5.5(1)	1
Cisco	WS-X6K-SUP1A-2GE	Catalyst 6000 Supervisor Engine 1A, Enhanced QoS, 2GE	2
Cisco	WS-X6416-GE-MT	Catalyst 56000 16-port Gig-Ethernet mod. MT-RJ	2
Cisco	WS-X6408A-GBIC	Catalyst 6000 8-port GE, Enhanced QoS	2
Cisco	WS-X6348-RJ-45	Catalyst 6000 48-port 10/100, Upgradable to Voice	2
Cisco	WS-G5486	1000BASE-LX/LH "long haul" GBIC	4
Cisco	WS-G5484	1000BASE-SX 'Short Wavelength' GBIC (Multimode only)	36
Cisco	CISCO3640	Cisco 3600 4-slot Modular Router-AC with IP software	2
Cisco	S364C-12.0.4T	IP	2



Cisco	NM-2CT1-CSU	2-Port Channelized T1/ISDN-PRI with CSU Network Module	2
Cisco	NM-1FE1CT1-CSU	1 Port F Ethernet 1 Port Channelized T1/ISDN-PRI with CSU NM	2

<b>Maintenance/Test System</b>			
<b>Manufacturer</b>	<b>Part</b>	<b>Description</b>	<b>Qty</b>
SGI	LS-3700	Altix 3700 Server: base system infrastructure	1
SGI	TP9300-BASE-2C	Fibre Channel controller enclosure, dual 2 Gb FC controllers, 512MB cache, 6 SFPs, 14 drive bays, no drives	1
SGI	TP9500-73GB-E	2 Gbit, 73 GB, 15K rpm LP Disk Drive with Dual FC/AL Ports	14
SGI	DK-TP-001	TP9300 destination kit	2
SGI	TP9300-RMKIT-UNIV	Rackmount kit for OEM racks, mounts to rails 20.5" to 28.5" deep for TP9300 controller enclosure	1
SGI	X-F22-OPT-3M	3 meter 50 micron optical cable w/LC connectors. For use with 2 Gbit switches, HBAs and devices.	2
SGI	LS-3700-4-4	Altix 3700 system: 4x1.5 GHz/6.0 MB, includes 1 IX-brick with 73GB system disk, no memory.	1
SGI	LS37-CBRICK-4-4	Altix 3300/3700 C-brick with 4x1.5 GHz/6.0 MB processors with NUMalink cables, no memory	1
SGI	LS-MEM-8G-166	8 GB standard system memory (8 DDR x 1 GB 166MHz) for Altix 3700 (min. 1 per C –or- M brick required).	2
SGI	73GB-IX BRICK	System disk for use in SGI 3000 series IX-bricks (73 GB/10K SCSI disk) maximum two disks per IX-brick.	1
SGI	SC5-PROPACK-2.4	SGI ProPack v2.4 for Linux (includes base OS-SGI Advanced Linux Environment 2.1.1)	1
SGI	DK-N3P-003	SGI 3000 three-phase power distribution unit for North America. One per SGI 3000 rack.	1
SGI	PCI-FC-1PORT-B	Single port 2 Gbit FC host bus adapter	2
SGI	PCIX-GIGENET-OR	1-port optical Gigabit Ethernet card for Altix	1
SGI	SR5-XVM-IPF-M	Right To Use XVM Standalone Volume Manager on a single Altix 3000 Linux host with up to 16 CPU.	1
SGI	M4-SVCWRNT-1.0	Global Services warranty card, system registration and Services Reference Guide for systems.	1
SGI	M05-CD	CD-ROM Update Media	1